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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/868,505	06/18/2001	Yoshiya Sakaguchi	43890-522	1376

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EXAMINER
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GOFF II, JOHN L

ART UNIT	PAPER NUMBER
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1733

9

DATE MAILED: 04/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

LN 9

<b>Office Action Summary</b>	Application No.		Applicant(s)	
	09/868,505		SAKAGUCHI ET AL.	
	Examiner		Art Unit	
	John L. Goff		1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 November 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13, 16-20 and 23-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
     If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \*    c) ☐ None of:  
         1. ☐ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
     \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
     a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other:  |

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### **DETAILED ACTION**

1. This action is in response to Amendment B received on 2/4/03. The previous rejections under 35 U.S.C. 112 have been overcome. In view of applicants arguments the previous rejection over Natarajan et al. in view of Hass et al. is withdrawn.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Claim Objections***

3. Claim 16 is objected to because of the following informalities: Claim 16 should depend from claim 1. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:  
  
The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
5. Claims 1-13, 16-19, and 24-28 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In claim 1, the phrase "said first laminate being maintained in a depressurized atmosphere during said first step" is unclear and confusing. The first step is the stacking of the sheet materials (See claim 1). It is unclear where

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in the specification is disclosed stacking the sheet materials in a depressurized atmosphere. It appears the sheet materials are depressurized after stacking and prior to pressing (See the specification page 17, lines 18-27 and cancelled claims 14 and 15), and this is the interpretation given to the phrase by the examiner. This issue should be clarified and reworded as appropriate.

***Claim Rejections - 35 USC § 103***

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-11, 13, 16, 17, 20, and 23-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hass et al. (U.S. Patent 5,573,622) in view of Koderä (GB 2274810).

Hass et al. are directed to a method and apparatus for laminating multilayer structures used in the electronics industry (Column 1, lines 12-14 and Column 2, lines 26-29). Hass et al. teach a method for laminating the multilayer structure comprising placing a multilayer stack of green sheets having asperities on a rigid plate, placing a deformable, resilient body on the stack, and applying heat and pressure via a press to the resilient body and the stack to bond the layers of the multilayer structure together (Figures 2 and 3 and Column 1, lines 43-46 and Column 3, lines 12-25 and Column 4, lines 40-47 and 57-65 and Column 5, lines 46-55 and Column 8, lines

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37-41 and 59-61). Hass et al. further teach placing a barrier/release sheet between the multilayer stack and the resilient body and preheating the resilient body, stack, and press prior to lamination (Column 6, lines 24-26 and 32-37 and Column 7, lines 15-21). In an alternate embodiment, Hass et al. teach using a resilient body with a greater width than the multilayer stack, and Hass et al. teach placing the multilayer stack between two resilient bodies rather than one resilient body and a rigid plate (Figure 4 and Column 7, lines 56-58 and 63-67 and Column 8, lines 1 and 4-9). It is noted the press provides a framework for covering the multilayer stack (Figures 2 and 3), and the resilient body provides a framework for covering the multilayer stack in the alternate embodiment (Figure 4).

Regarding claims 1, 20, and 24, Hass et al. are silent as to a specific teaching for depressurizing (i.e. applying a vacuum to) the multilayer structure prior to lamination. However, Hass et al. teach evacuating the air in the multilayer to avoid entrapping air during lamination. Hass et al. further teach the evacuating may be performed by any means known to one in the art (Column 8, lines 13-19). One of ordinary skill in the art at the time the invention was made would have readily appreciated evacuating the air in the multilayer as taught by Hass et al. using a vacuum (depressurized atmosphere) technique as it was well known in the art to evacuate a multilayer using vacuum before, during, and after lamination to remove air from the multilayer as shown for example by Koderá.

Koderá is directed to a method (and apparatus) for hot-pressing ceramic (green) sheets into a laminate. Koderá teaches the method comprises placing a stack of sheets into a press having upper and lower press platens wherein the upper and/or lower platens have vacuum (air) outlets and elastic sealing sleeves (elastic frame), closing the press to form a hermetically

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enclosed space containing the stack of sheets, evacuating air from the space by applying vacuum, hot-pressing the sheets under vacuum to form a laminate, and opening and removing the laminate from the hot-press (Figures 1, 4, and 9 and Page 8, lines 21-22 and Page 9, lines 12-13 and Page 10, lines 7-15 and 19-21 and Page 15, lines 17-23 and 26-27 and Page 16, lines 1-2).

Regarding claims 7 and 8, Hass et al. are silent as to the surface area of the barrier/release sheet being larger than the contact area between the sheet and the multilayer stack. However, one of ordinary skill in the art at the time the invention was made performing the alternate embodiment (Figure 4) taught by Hass et al. would have readily appreciated using a barrier/release sheet with a surface area larger than the contact area between the sheet and the multilayer stack to ensure the resilient bodies do not adhere to one another.

Regarding claims 20 and 23, it is noted Hass et al. teach a first pressing force application member with an elastic body provided inside of a rigid body, and a second pressing force application member with an elastic body provided on a flat rigid body (Figure 4). Hass et al. are silent as to the second pressing force application member comprising an elastic body provided inside of a rigid body. However, the rigid body of the first member extends to enclose the second member, and one of ordinary skill in the art at the time the invention was made would have readily appreciated shortening the rigid body of the first member while providing an extension to the second member to form a second rigid body similar to the first rigid body as only the expected results would be achieved. It is noted the rigid body of the first application member provides a frame for the multilayer structure, and while not specifically recited one would have readily appreciated using a support means to secure the resilient body of the upper member.

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8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hass et al. and Koderas as applied above in paragraph 7, and further in view of Natarajan et al. (U.S. Patent 5,759,320).

Hass et al. and Koderas as applied above teach all of the limitations in claim 12 except for a teaching on using a framework that is equal to or less than the thickness of the multilayer structure. It is noted Hass et al. teach an alternate second embodiment wherein the multilayer does not have a framework (Figure 5 and Column 8, lines 20-22). However, it is known in the art to provide the multilayer with a framework prior to bonding to prevent the green sheets of the multilayer from sliding during lamination as shown by Natarajan et al. One of ordinary skill in the art at the time the invention was made reading Hass et al. as modified by Koderas in view of Natarajan et al. would have readily appreciated incorporating into the alternate second embodiment (Figure 5) taught by Hass et al. as modified by Koderas a frame as suggested by Natarajan et al. to prevent the green sheets of the multilayer from sliding during lamination.

Natarajan et al. are directed to a method and apparatus for laminating a multilayer stack of green sheets that contain cavities (asperities) (Column 1, lines 16-21). Natarajan et al. teach a method for laminating the multilayer stack comprising placing a multilayer stack of green sheets on a rigid plate, placing an elastic body on the stack, and applying heat and pressure via a press to the elastic body and the stack to bond the layers of the multilayer structure together (Figures 4-7 and Column 4, lines 65-67 and Column 5, lines 1-5, 9-14, and 66-67 and Column 6, lines 1-5, 7-10, 14-18 and 28-31 and Column 8, lines 8-10). Natarajan et al. further teach placing a frame around the multilayer to prevent the green sheets of the multilayer from sliding during

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lamination and placing the stack, elastic body, and press within an environmental enclosure prior to lamination (Column 6, lines 10-14 and Column 8, lines 50-55).

9. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hass et al. and Koderas as applied above in paragraph 7, and further in view of Burn (U.S. Patent 4,935,844).

Hass et al. and Koderas as applied above teach all of the limitations in claims 18 and 19 except for a specific teaching on the materials used to make the green sheets. It is noted Hass et al. teach the green sheets are formed of ceramic material and conventional additives (Column 4, lines 57-65). One of ordinary skill in the art at the time the invention was made would have readily appreciated using as the ceramic material and additives suggested by Hass et al. polyolefin and inorganic powder as these were well known materials in the art for forming green sheets as shown for example by Burn.

Burn is directed to compositions used to make green sheets. Burn teaches the compositions comprise ceramic material and a polymeric binder wherein the binder may be a polyolefin (Column 2, lines 61-63 and Column 4, lines 12-17 and 32-49).

#### *Response to Arguments*

10. Applicant's arguments with respect to claims 1-13, 16-20, and 23-28 have been considered but are moot in view of the new ground(s) of rejection.



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*Conclusion*

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **703-305-7481**. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on 703-308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

*John L. Goff*

John L. Goff  
April 11, 2003

*Michael W. Ball*  
Michael W. Ball  
Supervisory Patent Examiner  
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